

Maths at Heronsgate

- 1) The maths curriculum
- 2) How your child can achieve and enjoy

The National Curriculum for mathematics

- Fluency
- Reasoning
- Problem solving

At Heronsgate we use a scheme of works called Maths No Problem!

- The principle behind this scheme is to teach a maths concept in small steps, this allows the children to gain a deeper understanding of what they are learning.
- A planned lesson may take more than one timetabled lesson for the children to grasp the concept they are being shown.
- For those children who finish set tasks quickly, there are always deeper depth challenges. These allow the children to dive deeper into a concept and develops their understanding further.
- For children who struggle with concepts, White Rose Maths is used to show the same concept but using a different method.

CPA

Concrete

Concrete step of CPA - Concrete is the “doing” stage. During this stage, students use concrete objects to model problems. Unlike traditional maths teaching methods where teachers demonstrate how to solve a problem, the CPA approach brings concepts to life by allowing children to experience and handle physical (concrete) objects. With the CPA framework, every abstract concept is first introduced using physical, interactive concrete materials.

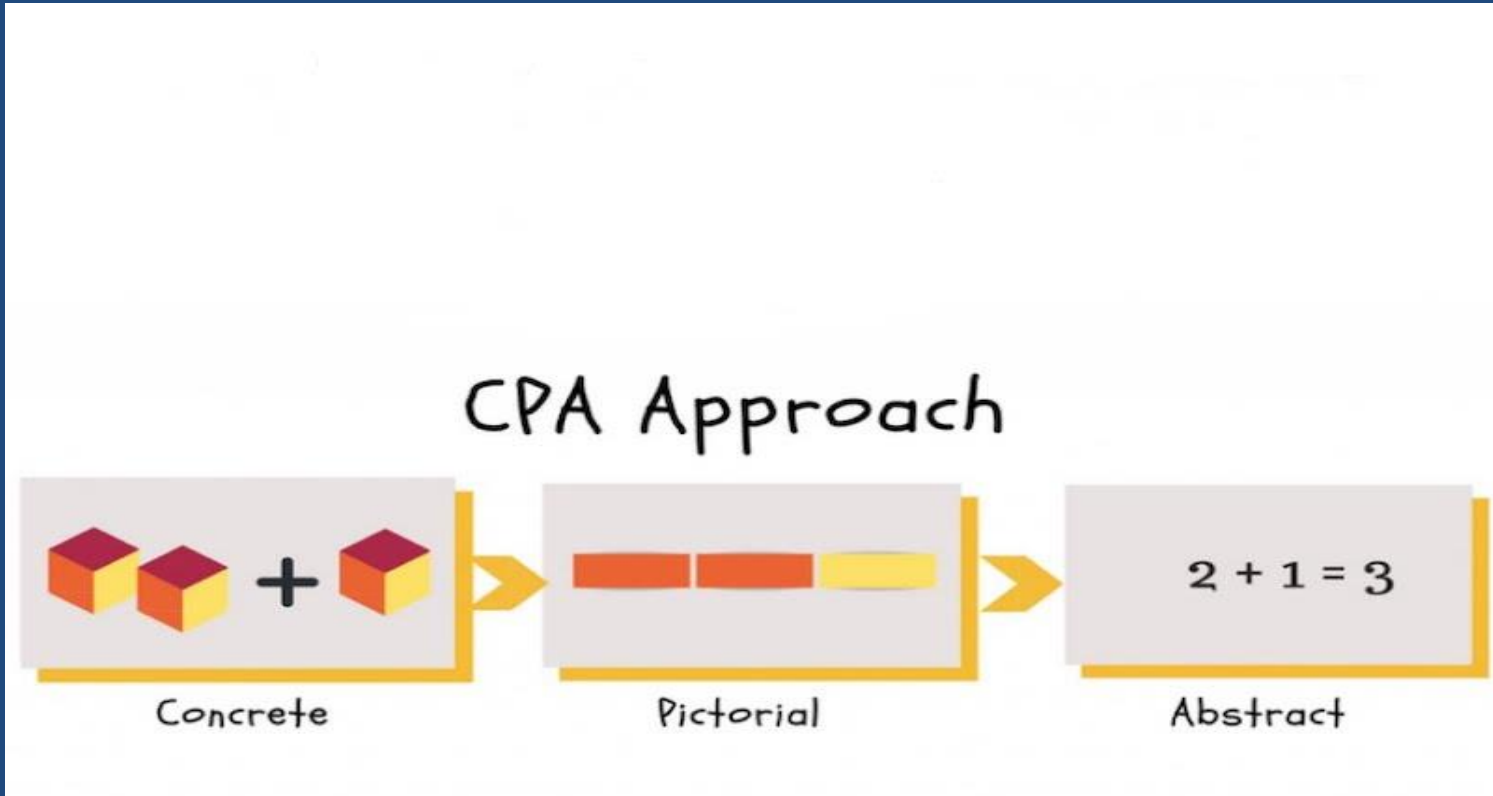
Pictorial

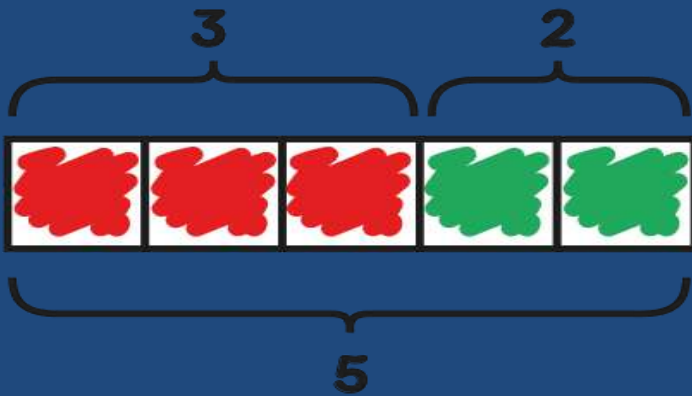
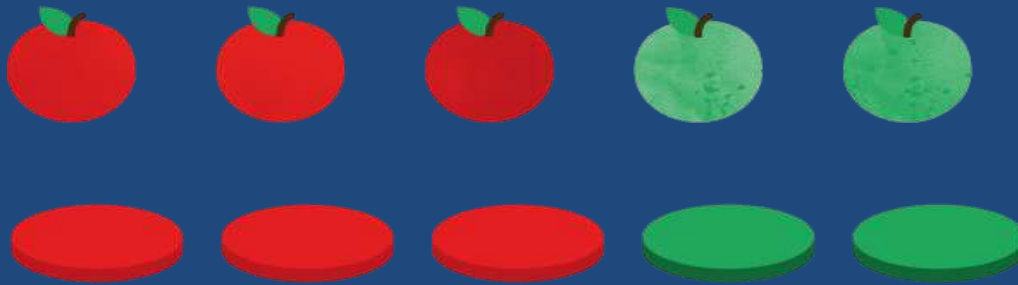
Pictorial step of CPA - Pictorial is the “seeing” stage. Here, visual representations of concrete objects are used to model problems. This stage encourages children to make a mental connection between the physical object they just handled and the abstract pictures, diagrams or models that represent the objects from the problem. Building or drawing a model makes it easier for children to grasp difficult abstract concepts (for example, fractions). Simply put, it helps pupils visualise abstract problems and make them more accessible.

Abstract

Abstract step of CPA - Abstract is the “symbolic” stage, where children use abstract symbols to model problems. Pupils will not progress to this stage until they have demonstrated that they have a solid understanding of the concrete and pictorial stages of the problem. The abstract stage involves the teacher introducing abstract concepts (for example, mathematical symbols). Children are introduced to the concept at a symbolic level, using only numbers, notation, and mathematical symbols (for example, $+$, $-$, \times , $/$) to indicate addition, multiplication or division.

Children can't move from one stage of CPA to another without being secure.






$$3 + 2 = \boxed{5}$$


Fluency

Children need to have a degree of fluency, this allows them to recall known facts quickly. **Fluent in Five** provides a daily set of arithmetic practice, designed to help children develop and maintain fluency in both written and mental calculations. The structure of **Fluent in Five** is also designed to help children distinguish between written and mental calculations.

Fluency

- Here are some examples


$$\text{A. } 83 + 8 =$$


$$\text{B. } 67 + 34 =$$

$$294 + 70 =$$

$$\frac{1}{4} \text{ of } 36 =$$

Reasoning

- Reasoning in maths is the ability to make logical links and connections which help you tackle a new maths problem. The skill of reasoning equips children not only with the ability to say how they will attempt to work out an answer, but why and how they can be sure it will work.

Reasoning

$$240 \div ? = 8$$

What can we use?

What do we know?

Reasoning

Sometimes? Always?
Never?

Here are some examples

1. The sum of 3 odd numbers is odd
2. If you add 1 to an odd number you get an even number
3. Multiples of 5 end in a 5
4. If you add two odd numbers you get an odd number
5. If you add a multiple of 10 to a multiple of 5 the answer is a multiple of 5

How did you do?!

1. Always
2. Always
3. Sometimes – every other one
4. Never
5. Always

Problem solving

Mathematical tasks which have the potential to provide challenges for enhancing children's mathematical understanding and development.

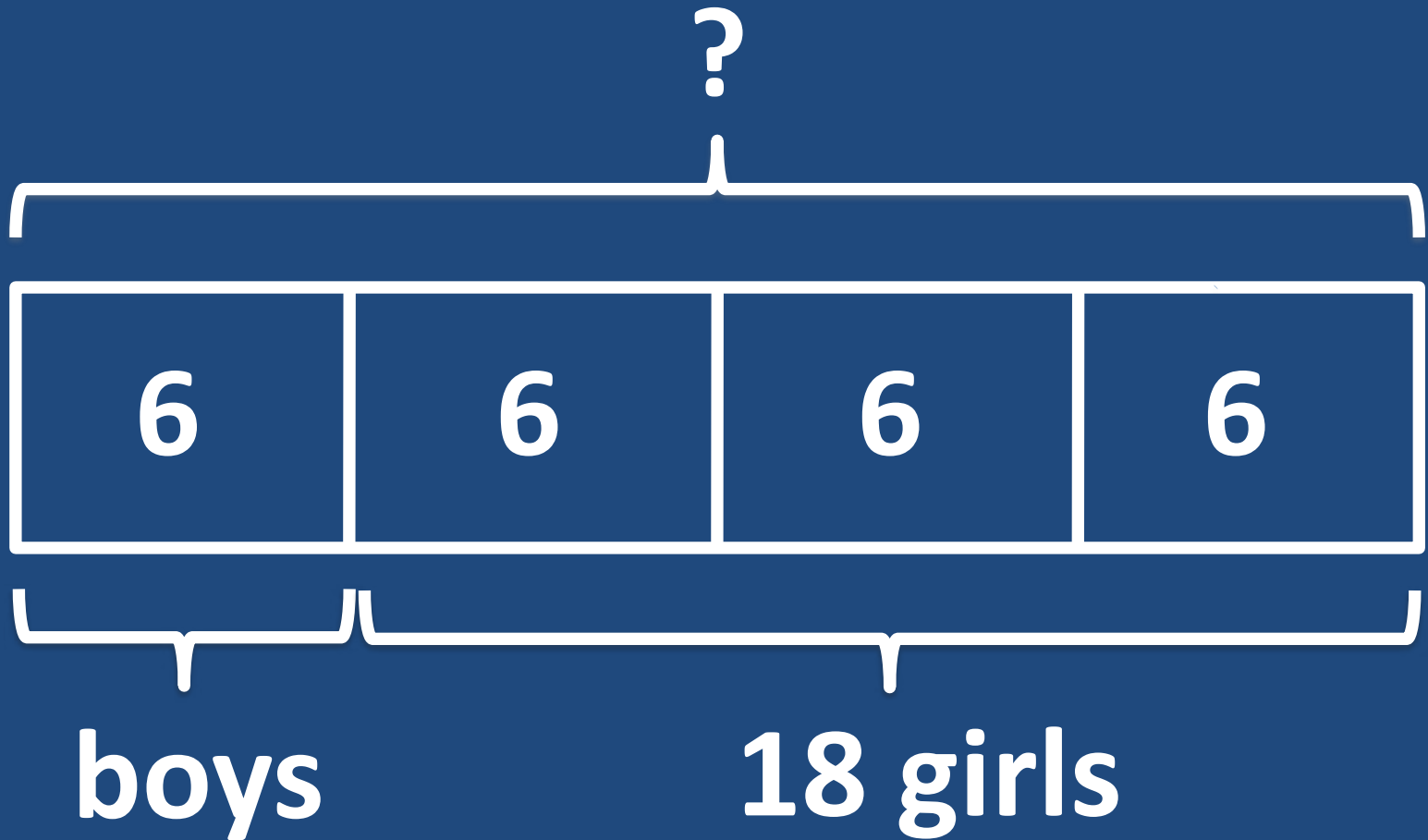
Instead of going up – the next year group – we dive deep down into a problem. This allows the children to really pick a problem apart and understand the mechanics of it.

Problem solving

A class has 18 girls. A quarter of the class are boys.

How many children are in the class?

A class has 18 girls. A quarter of the class are boys.
How many children are in the class?



Bar modelling

- Bar modelling is a method of solving maths.
- Children draw either part-whole or comparison models to represent the quantities given in a word problem.

Jane has 3 balloons and Flo has 8 balloons. How many balloons do they have altogether?

Part, Part Whole Method

Concrete

- Jane



- Flo



- Jane has 3 balloons and Flo has 8

$$3 + 8 = 11$$

$$8 + 3 = 11$$

Pictorial using a bar model



3

8

Whole

$$3 + 8 = 11$$

Comparison Concrete

Jane



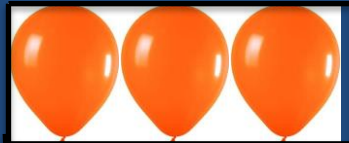
Flo



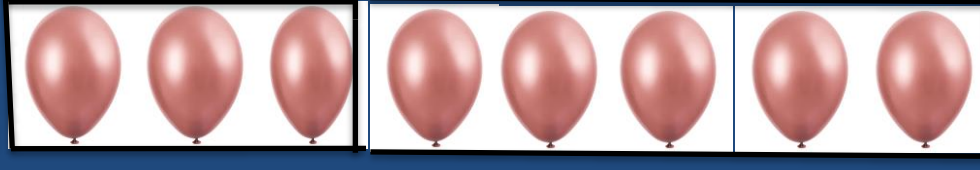
Comparison

Concrete/pictorial

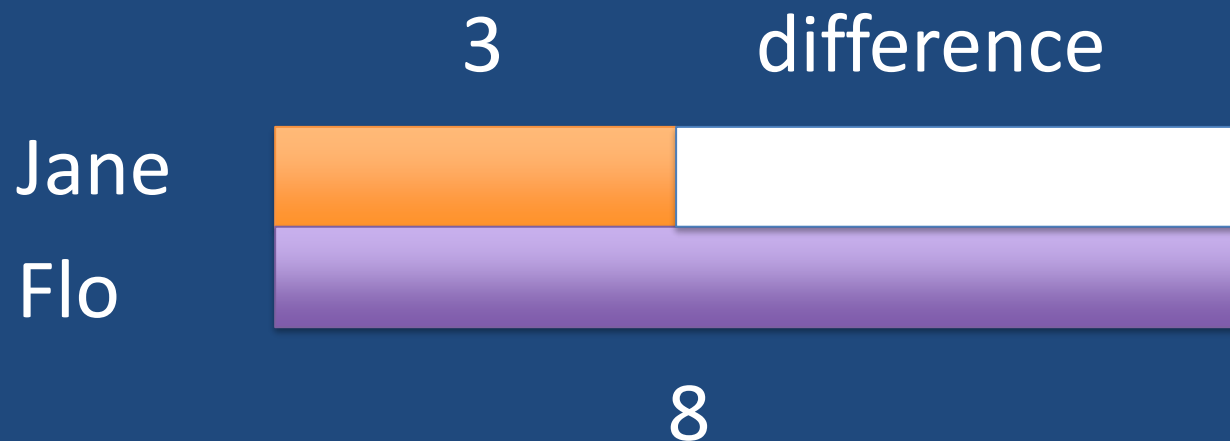
Jane



Flo



Bar model



$$8 - 3 = 5$$

How your child can
achieve and enjoy

What to do at home

Resources:

- 1) MyMaths – homework which is linked to the topic being taught in class
- 2) TTRockstars – rapid recall of multiplication and division facts
- 3) Sumdog – fun activities

Thank you!

- Maths is not as scary as you think!
- Your child can help you!
- Enjoy!!